

REMARKS

Applicants note that the disposition of claims on the Office Action Summary refers to claim 18 and omits claim 17. It is likely that the Examiner intended to refer to claim 17 rather than claim 18 since claim 18 was canceled by amendment mailed February 9, 2001, and the text of the Office Action refers to claim 17. Applicants' response is made accordingly.

Claim 1 has been amended to incorporate the limitation of the final volume ratio being approximately 0.5 or less. Support for this amendment is found in the specification on page 7, lines 10-14. Claims 22 and 23 have been amended in accordance with the Examiner's suggestion to recite the h/l ratio. Support for these amendments is found in the specification in the paragraph bridging pages 23 and 24. Since no new matter has been added by these amendments, it is respectfully submitted that they should be entered.

The following remarks are keyed to the paragraph numbers of the Examiner's Office Action (Paper No. 13) mailed January 2, 2002.

Paragraph 1

Claims 7-9 stand rejected under 35 USC§112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. More particularly, the terms "ultra high molecular weight polyethylene" and "ultra high molecular weight polypropylene" are deemed by the Examiner to render these claims indefinite since it is unclear whether reference is had to the weight average or number average molecular weight.

Claims 7 through 9 have been amended to delete the term "ultra high molecular weight", to add numerical limits for molecular weights, and to insert --weight average-- before "molecular weight" at each appearance in the claims. Support for these changes is found in the specification on pages 13 and 14.

With respect to the issue of whether the specified molecular weight of polyethylene is indefinite because it is not stated whether the molecular weight is a number average or a weight average, a declaration is attached by Dr. Milton McDonnell. Dr. McDonnell shows that the molecular weights in question cannot be number average. Evidence is presented to show that it

would be apparent to one of ordinary skill in the art that the molecular weights in the application are weight average molecular weights.

In light of the teachings of the present specification and the prior art, as well as the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time that this invention was made, it is respectfully submitted that amended claims 7-9 do set out and circumscribe the subject matter with a reasonable degree of clarity and particularity. Accordingly, reconsideration of amended claims 7-9 is respectfully requested.

Paragraphs 1-3

Claims 21-23 stand rejected under 35 USC§112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which Applicants regard as the invention. Claim 21 has been canceled without prejudice, and claims 22 and 23 have been amended in accordance with the Examiner's suggestion, to thereby render the rejections moot.

Paragraph 5

Claims 1-17 and 19-23 stand rejected under 35 USC§103(a) as being unpatentable over Schirtzinger (USP 3,686,048) in view of Li et al. (WO 91/08895). Applicants respectfully request the withdrawal of this rejection for the reasons that follow.

The products of Applicants' invention all have polymer-free areas (specification, page 19, lines 19-21). The composite of the present invention is composed of filaments with *discrete* matrix *islands* of limited dimension and relative volume. Schirtzinger, however, contemplates *continuous* matrix *structures* (full impregnation) for its final structures (see column 2, lines 49-54, and column 4, lines 23-56). Accordingly, Schirtzinger teaches away from Applicants' invention.

The deficiencies of Schirtzinger are not met by Li et al., which teaches dispersal of filaments "in a *continuous phase* of a rigid matrix material" (emphasis added, from Li et al., page 10, lines 22-24).

Applicants respectfully submit, therefore, that a *prima facie* case of obviousness has not been established for amended claim 1 and claims 2-17 and 19-23 that depend directly or indirectly therefrom.

Paragraph 6

It is respectfully submitted that the Examiner's reservations expressed in this paragraph have been met by the amendment with accompanying remarks above.

Attached hereto is a marked-up version of the changes made to the specification and claims by the present amendment.

In light of the foregoing amendment and remarks, it is submitted that the claims now of record, i.e. claims 1-17 and 19-23, are allowable and should be passed to issue. Applicants respectfully request the same. The Examiner is invited to call the undersigned attorney if there are any unresolved issues to discuss same.

Respectfully submitted,
GARY A HARPELL ET AL.

By Virginia Szigeti (Andrews)
Virginia Szigeti (Andrews)
Applicants' Attorney
Reg. No. 29,039

Honeywell International Inc.
15801 Woods Edge Road
Colonial Heights, VA 23834
(804) 520-3651

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, DC 20231 on May 21, 2002

Virginia Szigeti (Andrews)
Virginia Szigeti (Andrews)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (twice amended) A composite comprising:
a plurality of filaments; and
a plurality of matrix islands, each of said matrix islands having an average size of less than 5 mm in a planar dimension and connecting at least two filaments so as to hold the plurality of filaments in a unitary structure; wherein the final volume ratio of matrix islands to the plurality of filaments in the composite is approximately 0.5 or less.

7. (amended) The composite of claim 1, wherein the filaments are filaments selected from the group consisting of [ultra high molecular weight] polyethylene of molecular weight greater than about 500,000, [ultra high molecular weight] polypropylene of weight average molecular weight greater than about 750,000, aramid, polyvinyl alcohol of weight average molecular weight greater than about 100,000, polyacrylonitrile of weight average molecular weight greater than about 400,000, polybenzoxazole, polybenzothiazole, fiberglass, ceramic and combinations thereof.

8. (amended) The composite of claim 7 wherein the plurality of filaments comprises [ultra high molecular weight] polyethylene of molecular weight greater than about 500,000.

9. (amended) The composite of claim 8 wherein the [ultra high molecular weight] polyethylene filaments have a tenacity of from about 30 g/denier or greater and a modulus of from about 1500 g/denier or greater.

[21. The composite of claim 1, wherein the composite possesses at least about 70% flexibility; of a planar weave fabric made from Spectra®1000/45 x 45 ends/inch.]

22. (amended) The composite of claim 1, wherein the composite possesses [a flexibility] an h/l ratio of from about 0.7 or more.

23. (amended) The composite of claim 1, wherein the composite possesses [a flexibility] an h/l ratio of from about 0.85 or more.